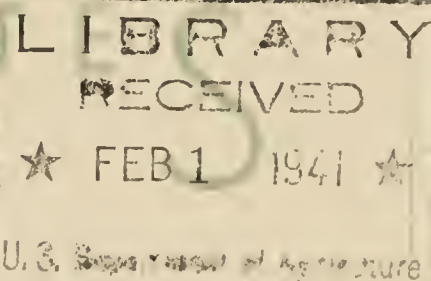


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TECHNICAL NOTE

LAKE STATES FOREST EXPERIMENT STATION
UNIVERSITY FARM ST. PAUL MINNESOTA



Testing Cone Ripeness

A simple method for testing the ripeness of red and white pine cones by means of specific gravity has been described in Technical Note 170. As an aid to the practical application of this test a simple field kit has been devised by means of which the progress of cone ripening can be followed and reasonably accurate plans for collection made in advance.

The kit consists of a wooden box divided into 4 compartments and topped with a hinged cover. In each compartment is placed a covered container (quart fruit jars, 1/2 or 1 gallon paint cans, or the like) and an ice pick or ice-cube tongs for removing cones after testing. The containers are filled from left to right with (1) water, (2) linseed oil, (3) a mixture composed of equal parts of linseed oil and kerosene, and (4) kerosene. The kit is used as follows: First, 5 or more cones are collected from a tree and dropped in container 1. Second, if the cones sink, no further test is necessary; if they float, then they are dropped in container 2, and so on. White pine cones which float in container 2 are ripe and no further test is necessary. Red pine cones are not fully ripe until they float in container 4, but reasonably good quality seed can be recovered from cones which float in container 3, and where a large-scale collection program is anticipated, about 10 days can be added to the collection season by beginning at the time the cones float in the linseed oil-kerosene mixture.

The following table, which shows the average number of days in which cones will float in a given liquid after they first float in the next heaviest liquid should serve as a guide for making additional tests on planning the beginning of the collection operation:

Species	Average time at which cones will float in designated liquid							
	Water		Linseed oil		Equal parts of linseed oil and kerosene		Kerosene	
	Days ^{1/}	Dates ^{2/}	Days	Dates	Days	Dates	Days	Dates
Red pine	0	8/10-20	18	9/1-10	6	9/10-15	10	9/17-23
White pine	0	7/25-8/5	32	8/27-9/6	9	9/6-12	6	9/10-15

^{1/}Number of days cones will begin to float in designated liquid after they first float in next heaviest liquid (to the left in the kit).

^{2/}These are dates between which floating can be expected to begin in northeastern quarter of lower Michigan. Other localities will doubtless have somewhat different dates.

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